Tennessee Tech University

Animal & Plant Cells

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| Name: Kaylie Lahrs  Date: March 19, 2013 and March 23, 2013 Lesson Title: Animal & Plant Cells Grade/Level: 5th Grade |
| Curriculum Standards |
| *State/Common Core Curriculum Standards*  **Science**  State Standards:  GLE 0507.1.1 Distinguish between the basic structures and functions of plant and animal cells.  SPI 0507.1.2 Compare and contrast basic structures and functions of plant and animal cells.  **Technology/Engineer**  GLE 0507.T/E.1 Describe how tools, technology, and inventions help to answer questions and solve problems.  **Computer Technology**  Standard 3.0  Students will use technology productivity tools.  Learning Expectations:  3.1 Students will use technology tools to enhance learning, increase productivity, and promote creativity.  Accomplishments  5.3.1. Students will use technology tools to enhance learning, increase productivity, and promote creativity.  c. Use simulation software and tutorial software to assist with learning.  5.3.2. Students will use productivity tools to collaborate in constructing technology enhanced models, prepare publications, and produce other creative works.  a. Use the computer and technology resources to practice learning skills in relation to other subject areas such as math, science, English, etc. |
| Focus Questions/Big Idea/Goal (List all 3) |
| *What question(s), big idea(s), and goals drive your instruction?*   * Focus Question: How are plant and animal cells organized to carry on the processes of life? * Big Idea: All living things are made of cells that perform functions necessary for life. * Goal: Students will be able to understand the basic structures of plant and animal cells. |
| Lesson Objective(s) |
| *Objectives are measurable.*   * Students will create an informational brochure to show the parts of the cell and their functions. * Students will compare and contrast animal and plant cells. |
| Vocabulary/ Academic Language |
| *What opportunities will you provide for students to practice content language/vocabulary and develop fluency*?  The teacher goes over all these terms when the students are creating their cookie cells.   * Cell wall- only in plant cells. I surround and protect the cell, and make it strong and stiff. Nickname is “supporter and protector”. * Cell membrane- hold and protect the cell. Also, control what substances come into and out of the cell. Nickname is “the doors to the cell” * Cytoplasm- a watery, gel-like material in which cell parts move and cell activities take place. Nickname is “area of movement”. * Mitochondria -Produce most of the energy for the cell. Nickname is “the powerhouse of the cell”. * Chloroplast- only in plant cells, like the cell wall. I contain chlorophyll. Nickname is “Food Producers”. * Chlorophyll- only in plant cells capture energy from sunlight and uses it to produce food for the cell. * Vacuoles- store food, water, and chemicals. Nickname is “Storage Tanks”. * Nucleus- regulate and control cell activities, acting like the “ brain” of the cell. Nickname is “Control Center”. * Nuclear membrane-protect the nucleus and also allow substances to pass in and out of the nucleus. Nickname is the “doors of the nucleus”. * Chromosomes- direct the activities of cells. Nickname is “director of the cell”. |
| Material/Resources |
| *What do you need for this lesson?*   * Cookies * Icing * Gummy worms * Green, pink, yellow, and blue sprinkles * Brochure- includes handout of the cell and compare/contrast worksheet * Microscope * Digital Microscope * Slides of different cells |
| Assessment/Evaluation |
| **Formative***: How will students demonstrate understanding of lesson objective(s)? How will you monitor and/or give feedback?*  The teacher will observe the students make their cookies while the teacher explains each function of the cell.  **Summative:** *What evidence will you collect and how will it document student learning/mastery of lesson objective(s)*  Students will complete their worksheet pages (labeling a cell worksheet and compare/contrast worksheet) in their brochure and turn them in for a grade. |

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| Instruction  (Include a suggested time for each major activity) | List Questions for higher order thinking *These cannot be answered by yes or no.*  (Identify Bloom’s Level of Thinking) |
| Set/Motivator: *How will you engage student interest in the content of the lesson? Use knowledge of students’ academic, social, and cultural characteristics.*   * Students will watch a brain pop video on cells.   Time: 5 minutes | Remembering: What do you know about cells? |
| Instructional Procedures/Learning Tasks**:** *Provide specific resources/details of lesson content and delivery.*   * During this section the teacher will define the functions of the plant cell as they make their cookie. * students can work in pairs or individually. * Students will first select a plain sugar cookie. * Then the students will add the icing (plasma). * Then the students will add the gummy worm (Golgi apparatus). * Then the students will add the sprinkles.   + Green - chloroplast   + Pink - mitochondria   + Yellow - nucleus   + Blue - ribosome’s * Then the students can eat the cookie!   Time: 15 minutes | Understanding: Can you explain the difference between animal and plant cells?  Applying: Can you draw and label an animal cell in your brochure?  Analyzing: What does a plant cell have that an animal cell does not?  Creating: Can you create a cell using a cookie, icing, sprinkles, and gummy worms? |
| Closure: *Verbalize or demonstrate learning or skill one more time. May state future learning.*   * The students will have time to look and play with the microscopes and examine different cells.   Time: 10 minutes | Understanding: What is made up of cells? |

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| Adaptations to Meet Individual Needs: *How will you adapt the instruction to meet the needs of individual students? Include -*  *ELL?; SPED?; Gardner’s Learning Styles - Name and specify what happens in the lesson that uses each learning style listed; Other individual needs of the students/class you are teaching?*   * ELL students will work with a partner for this activity. * SPED students will follow their IEP. * Interpersonal intelligence: Students will work in pairs to complete this activity. * Intrapersonal intelligence: Students will complete individual models to understand how cells are viewed. * Visual-Spatial intelligence: Students will use graphic organizer brochures to find the similar and difference in the activity and draw different cells. * Logical-Linguistic intelligence: Students will analyze and discuss cell parts by comparing animal and plant cells * Kinesthesia Intelligence: Students will be constructing the different models with their hands.   Management/Safety Issues: *Are there any management and/or safety issues that need to be considered when teaching this lesson?*  Teacher needs to address any food allergies. |
| Rationale/Theoretical Reasoning:  This lesson is meant to help students understand the different organelles of the cells and their function. It is to show the students that each organelle is important to the function of the cells By using hand-on activities, it gives the students a chance to understand the difference and the similar of plant and animal cells.  Through Vygotsky’s theory of the Zone of Proximal Development, students will learn through the social interaction of the teacher and their peers to understand the makeup of living organisms and ultimately how the human body, while being in a comfortable environment where they are free to discover knowledge with their peers. The students will identify the similarities and differences of the animal and plant cells, and the students will process the connections and misconceptions of the two cells. Through Gardner's multiple intelligences, which are listed above. |
| References: *List the references used in this lesson*   * BrainPop. Retrieved April 7, 2013 from <http://www.brainpop.com/science/cellularlifeandgenetics/cells/>. * Plant and Animal Cell Organelle Quiz. Retrieved April 7, 2013 from <http://www.lahc.cc.ca.us/biology/bio3/mchernoff/quiz.html>. * Comparing Plant and Animal Cells Venn Diagram. Retrieved April 7, 2013 from <http://www.docstoc.com/docs/43425203/Comparing-Plant-And-Animal-Cells-VENN-Diagram---Download-as-DOC>. |
| Reflections/Future Modifications:*To what extent did the class learn what you intended them to learn? What will be your next steps instructionally? What did you learn about your students as learners? What have you learned about yourself as a teacher?*  I felt like the lesson went really well. I liked how the lesson could fit multiple grade levels, and was fun for everyone. I felt like we could not go over as much vocabulary that was planned, but got the main parts of the cell. We also talked about the similarities and differences of animal and plant cells. Some students however were more interested in hurry through and making the cookie just so they could eat it, or had some students put way too many sprinkles or icing on their “cell”. The students also really liked looking at the cells with the microscopes. The microscope that plugged in the wall magnified the cells much larger than the digital microscope. Next, instructionally, we could go over the animal cell in more detail really examining its functions. I learned that teaching children in different age groups was more challenging than I thought it would be, but overall a success. |